RICE LAKE

NARRATIVE REPORT

January-December 1966

RICE LAKE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

1966

****

****

****

****

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES & WILDLIFE

FISH AND WILDLIFE SERVICE

MC GREGOR, MINNESOTA

****

REFUGE PERSONNEL

Carl E. Pospichal	Refuge Manager
Leonard F. Hurd	Maintenanceman
Leland A. Thornbloom	Biological Technician

W.A.E. EMPLOYEES

Dwight C. Bailey	Laborer, Farm
Leslie E. Drone	Laborer
John A. Nordstrand	Laborer, Farm

****

C O N T E N T S

RICE LAKE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY - DECEMBER, 1966

I GENERAL

A. Weather Conditions:

	Precipitation				Max.	Min.
	Month	Normal	Snowfall		Temp.	Temp.
January	.56	.633	10.0		27	-38
February	.88	.599	2.5		45	-28
March	2.18	1.239	21.0		55	-14
April	2.64	2.343	9.5		63	20
May	2.50	3.716	-		85	21
June	2.25	4.071	-		90	36
July	4.17	4.440	-		91	51
August	5.35	3.970	-		86	42
September	.73	2.749	-		86	29
October	2.32	1.575	2.0		80	21
November	.78	1.258	7.0		51	- 5
December	.56	.725	9.0		40	-16
Annual Totals	24.92	27.318	61.0	Extremes	91	-38

The moisture listings for months in which snow fell include the precipitation which fell as rain and the snowfalls which were melted for measurement here at refuge headquarters. As usual, our temperature data came from the Government Weather Station at the Sandy Lake Dam, located 23 miles north of refuge headquarters.

January was typical by being very cold with a minimum temperature of -38 degrees recorded. At the same time we had 10 inches of

snow recorded. February also was cold but was tempered by several warm days accompanied by sleet which turned into quite a heavy rain on February 8th. March came in like a lion and continued roaring for the whole month. Twenty-one inches of snow was recorded and most of this was accompanied by strong winds. Needless to say, this caused lots of blocked roads and several days that area schools remained closed. However, by the end of March the snow cover was fast disappearing and spring was on the way. Although 9.5 inches of snow fell during April it melted fast and the snowfalls gradually gave way to rain showers.

May, June and July were fairly normal with no extreme temperatures being recorded. Precipitation for the period was slightly below normal. We had several heavy rainfalls in August and ended the month with 1.38 inches above the normal. Temperature-wise it was a pleasant month but the rain ruined many vacation plans.

The fall months of September and October were ideal. Strong winds that have been prevalent in Septembers-past were absent. The first light frost of the season occurred September 14th.

Mild weather continued into October and was beneficial in many ways such as allowing time to finish up late field work; allowing the local Indians to rice ten straight days and finish up and leave the refuge, and last but not least, light frosts with virtually no wind allowed the trees to hold their autumn foliage for a longer time adding to the grandeur of an ideal fall in northern Minnesota.

The months of November and December were quite similar. However, a severe cold snap on the opening of deer season, November 12th, saw the temperature plummeting to minus five degrees. The weather moderated after a week and was near normal the balance of the month. December began with below zero readings. After a low of -16 on December 11th the weather moderated and temperatures got as high as 40 degrees. This continued through Christmas and though the thermometer went a little lower each day the weather was still pleasant.

B. Habitat Conditions:

1. Water:

After two years of heavy spring floods and flood damage, it was a relief to have more normal water elevations to contend with. With lower river elevations, it was possible to maintain a flow out of Rice Lake. The radial gates of the Rice River Pool were freed of ice by mid-March and were opened wide.

The lake ice was broken up by April 23. Ideal weather conditions involving warm days and cool nights helped to regulate the melting of the heavy snow cover and gave a partially-controlled runoff condition instead of flood waters. For a short period, starting in mid-March, the Rice Lake control was closed to keep out the Rice River but it was reopened by mid-April. The lake continued to rise for a time in spite of this. This control remained wide open until July 22, when eight logs were replaced. At this time it was determined that the lake was at the desired elevation for production of wild rice and other aquatic food plants. The established elevation at the outlet control was considered high and this was reshot by the survey crew. Low winter levels on both the lake and the Rice River Pool were key factors in permitting proper water management during the spring runoff.

Summer elevations were nearly ideal for management of wild rice and other aquatic waterfowl food plants. A flow was maintained through the Rice River Pool throughout the year except for a short time in late September and early October when marginal areas were flooded for waterfowl use. Fall conditions were also excellent. Refuge water areas were frozen over on November 1.

Peak spring elevations were 98.42 at the Rice Landing and 98.00 at the Rice River Pool gauge. At the end of the year, Rice Lake was at 95.40 and the Rice River Pool showed a level of 93.90.

2. Food and Cover:

Wild rice, the number one waterfowl food crop on the refuge, made a good recovery after two spotty years caused by high water levels. Excellent beds showed the ability of wild rice seed to lie dormant until conditions for growth are satisfactory; also proving that only a portion of the seed in the water sprouts each year, leaving a supply in reserve to carry over the bad years. Local Indians still resist the knowledge that wild rice is an annual. This probably accounts to a large extent for the gentle manner in which they conduct their harvest operations. Their passing leaves little sign other than lighter seed heads, as opposed to the shattered plants and ruined green rice left by the white man on outside areas. Five pickings on each half of Rice Lake during the ten day season brought continued good yields. There was enough rice dropped into the lake to assure reseeding and to render many of the thousands of ducks using the refuge temporarily incapable of flight due to gorged crops. The approximately 45,000 pounds of rice harvested was estimated to be half of the total crop. Canada geese, blues and snows and coots also

fed heavily on the rice crop. The Canadas also fed heavily on the plants throughout the summer months, causing some damage to the smaller beds. However, summer goose populations to-date have not been sufficient to cause serious damage. This could become a problem if the goose flock were to become large. Present indications are that a good proportion of the refuge geese have been returning to nest in off-refuge habitat which has proved attractive. Lower water levels also contributed to the well-being of such food plants as wild celery, saggittaria, bullrushes, Elodea, Ceratophyllum, Utricularia, Polygonums, several species of Potamogetons, Najas, Sparganium, Lemna, Alisima and Bidens. Some of these also provided excellent cover, as did two species of Typha.

Cover was more than adequate for both terrestrial and aquatic wildlife. Browse was adequate for the refuge deer herd which came through the winter in good condition. A new wood duck roost was located, containing over 500 birds. This was flooded brush, as were the others. Pulpwood units recently cut, produced excellent deer browse.

Although refuge crops did not produce well, due largely to weather conditions, there was enough of this type of food to supply the needs of both deer and waterfowl, plus the small flock of sharp-tailed grouse using the field area.

II WILDLIFE

A. Migratory Birds:

1. Whistling Swan:

The spring flight of whistling swans again remained rather light. The first birds on the refuge in 1966 were a flock of 10 which dropped into Rice Lake on April 15. The peak number came during the following week at 20 birds. Departure of the spring migrants came after the first week of May.

There was a good movement of whistling swans over the refuge during late October and well into November. Fifty of these birds used Rice Lake the last week of October and built up to a peak of 150 the following week. All had departed by November 12. Many flocks totaling several hundred birds passed over the refuge during this period, some of them almost two weeks after Rice Lake had frozen over.

2. Geese:

The winter population of large Canada geese varied from 20

to 30 birds as they often flew out to other areas, sometimes 20 or more miles from the refuge, where they might stay for several days. The first pairing among the refuge flock and indication of territory selection was noted by the first week of March. By mid-March all breeders were paired and selecting nest territories. On March 17, the first migrant birds returned to the old goose pen site and competition for select nesting spots was noted, although plenty of islands were available for all pairs. By March 23, about 200 of the refuge birds were back and ready for the process of nesting and raising their young. The first Canada goose nest for the spring was noted on an island on April 13. There were several snowfalls during April which made the goose nests easy to locate since the birds stood out so prominently against the white background. This did not appear to affect nesting success either due to cold or increased predation. Only one nest was known to have been destroyed by a predator, in this case a fox was suspected. A nest containing five eggs was found destroyed on May 20. It was felt that this nest was several days overdue in hatching. The first Canada goose brood, containing seven young, was noted on May 15. Total refuge production was again about 200 young. A pair nested on the small impoundment near the west fields for the first time. Again, several pairs nested off the refuge, some over 20 miles away. This increased off-refuge nesting is gratifying in that it shows suitable habitat throughout this area. During the fall, most of these birds move into the refuge but still make numerous feeding and exercise flights to outside areas. The summer population of birds remained at about 400. The main refuge road proved to be a great display area again as the birds moved out of the river and marsh daily for browse and grit along the roadway.

Fall use of the refuge by Canada geese was probably the best for a number of years. During the last week of September the local birds and some migrants began to move in and build up primarily on Rice Lake where the wild rice crop proved a big attraction to all waterfowl. This was the first year when it was considered that the migrant Canadas made more use of the refuge. The peak of 1,200 was double that of the previous year. Hunting pressure along the refuge showed considerable increase this year also, as non-local hunters began to move in. The Canadas received a great deal of attention throughout the summer and fall by sightseers as the young birds matured and as the flocks began to use the browse in the agricultural units. Young birds were trapped and banded.

Although Lesser Canadas have not been numerous on the refuge, there are usually a few which stop in each spring and fall. In 1966 there were 20 of these small Canadas here during the

last week of March and the first week of April. A few stragglers were seen for a few weeks thereafter, increasing to 100 during the first two weeks of May. The last ten had departed by the end of the month. During the fall the peak was again 100 small Canadas, beginning with the arrival of 50 on October 2, peaking during the following two weeks, and departing by the twenty-second of the month.

On April 11, Cobhead, the blue goose, returned with his flock of about 20 Canadas but this time he remained only a few days before departing for parts unknown. For the first time in several years he was not seen during the fall migration. Blue and snow goose use in this area during the spring migration is generally rather light. The first noted were 10 blues during the third week of April. The following week they were joined by 10 snows and 40 more blues. The peak of 250 blues and 30 snows came during the first week of May and all were gone by the following week. It has been typical on this refuge to have more blues than snows in the spring migration and to have more snows than blues in the fall migration. On September 28, the first 10 snows landed on Rice Lake and began to use the refuge browse units. The following week there were 1,500 snows and 500 blues. Many flocks of blues and snows passed through the area during the next few weeks but continued on their way. The peak of 2,500 snows and 1,000 blues came during the second week of October and continued through the following week, after which there was a decline by more than half by the fourth week of October and the last blues and snows were gone by November 5. By this time most of the refuge water areas were frozen over.

The refuge scored a first for Minnesota when a single Black Brant arrived on May 17. This bird remained in close company with three Canadas for a couple of weeks. It was never more than a few feet from one of the large geese, usually following it like a tail. Bird watchers came from as far as Minneapolis to add this bird to their life list. It was last seen on May 31.

3. Ducks:

The spring duck migration showed an interesting contrast to that of 1965 in the fact that although total days' use was only slightly changed and peak populations were nearly the same, days' use by species varied drastically. The mallard was one of the few species which showed an increase in total use, a rise by 12.5 per cent. This was partially due to earlier arrival and actually longer use than in 1965. Wood ducks also arrived earlier in 1966 but also in larger numbers. This bird showed increased spring use by over 500 per cent. Canvasbacks showed a thousand days' use as compared to none the previous spring. Scaup showed greatly increased use, as did common and hooded mergansers. Red-breasted mergansers

were quite common as compared to none observed in the spring of 1965. Goldeneyes showed a slight increase in use. All other species showed decreased total spring use, the most notable drops among widgeon, both blue-winged and green-winged teal and ringnecks.

In contrast, summer use by all duck species showed an increase during 1966. Although most of these were only moderate, black ducks, widgeon, both species of teal and ringnecks showed prominent increases. Summer water elevations and weather conditions were much improved over the past two years and production of young was up by about 20 per cent. Habitat was generally better over the entire refuge both for production and normal food and cover needs. Mallard production was down by 10 per cent; blacks down by 25 per cent; widgeon up by 200 per cent; pintails showed no change; green-winged teal had an excellent year with these birds very commonly observed. Their production rose by over 700 per cent from the previous year and were fourth in total numbers of young produced. Blue-winged teal, the number one producer of young, showed no notable change from 1965. Wood ducks had another good year and showed an increase of about 17 per cent in young birds. It is hoped that more new nesting boxes may help to further increase this number. Ringnecks are not a heavy nester on this area but showed a gratifying production increase of over 30 per cent. No young scaup were seen in 1966, though they have nested on this refuge in limited numbers in other years. Hooded mergansers were about equal in numbers of young produced the prior year.

The fall migration was the one which tended to prove the true value of proper water elevations and wild rice production on this refuge. Because the previous fall was an unusual one in terms of poor duck flight through this area, the 1966 fall duck population appeared more spectacular than was actually the case. It was, in fact, about normal for a year with a fairly good wild rice crop. Past records indicate that duck numbers comparable to those of 1966 tie in with plenty of available rice. Total duck days' use for 1966 was 2,919,847, about one and three-quarters million of which were recorded during the fall migration. There have been much higher use years, probably double the above, but this is good for a comeback. It compares well with the 1,357,508 duck days' use in 1965 when high water conditions permitted the growth of only a poor rice crop. The comparison is made more apparent by the contrast of 1,511,292 total waterfowl days' use during the high water year of 1965 and 3,575,926 total waterfowl days' use during 1966.

The ringneck, for which Rice Lake is famous, came up from a 1965 level of 3,000 birds to a 25,000 peak this past year.

Again, this is a long way from the 100,000 plus peaks of the past but a good start back. Mallards peaked at 18,000 as compared to 3,500 a year ago. Green-winged teal rose from the previous year's peak of 500 to a top of 15,000. Several other species also showed good comebacks, such as widgeon from 1,100 to 5,000 and scaup from 1,000 to 3,000. Canvasbacks showed a slight decline in peak and arrived much later than in 1965, producing a 200 plus percentage drop in total use. The lake was frozen over prior to the arrival of the goldeneyes and buffleheads this past year, though they were seen on the deeper lakes in this area.

4. Coots:

Coots, or rice hens as they are often called, were again normal summer residents of this refuge. The first arrivals were 250 birds which dropped into the refuge during the last week of April, as they did a year ago. The summer population of 150 birds was about equal to that of 1965. The fall population of these birds was 20,000 in early October, a tremendous increase over the 1,000 peak of 1965 and the 7,000 in 1964. Total days' use for 1966 was 466,200. In 1965 the total was 55,790.

5. Other Water Birds:

Common loons were present on the refuge throughout the spring and summer months. A pair nested on Mandy Lake where their cries could be heard each evening from the Headquarters area. Horned grebes were spring migrants noted in small numbers, especially on Rice Lake. Pied-billed grebes were noted throughout the summer, as they are nesting residents on the refuge. Great blue herons again nested on the island in Rice Lake where about 200 birds maintain their early summer residence. One cormorant was noted on the Rice Lake but no nesting was noted in the old colony. American bitterns, sora and Virginia rails continued to be common summer residents. The winnowing of the Common snipe could be heard well into the summer during the evenings. The cries of Sandhill cranes was quite common in the marsh south of the Refuge Headquarters but the birds were seldom seen except in flight or at the farm units. One pair raised one young. The largest single group noted was 5 birds. Common egrets were seen on a couple of occasions in early summer and the least bittern was noted infrequently.

6. Shorebirds, Gulls and Terns:

Although regular woodcock singing surveys were made during the spring, no birds were noted during these surveys. One

was noted on the route at a later date. During October there was a light flight through this area. An unusual observation was a single woodcock flushed on the last day of October when foul weather had already deposited a light snowfall on the ground. Common snipes, as mentioned above, were present in good numbers throughout the summer and were especially common in late September and early October when several hundred were noted. Golden plovers passed through in small numbers. Killdeers were again the most common shorebird on the refuge. Spotted, least and pectoral sandpipers used the refuge in small numbers. Semi-palmated plovers were seen on the island in Rice Lake. Common and black terns were present during the summer with peak numbers of a hundred or more of each noted during the spring and fall. Lesser yellowlegs were fairly common during the early fall. Herring gulls were present during the fall, with the more common ring-billed gulls noted throughout the spring, summer and early fall. These birds were attracted in fair numbers by rough fish taken during winter salvage operations.

B. Upland Game Birds:

A single hen pheasant made its appearance in the marsh near Headquarters during the fall. Ruffed grouse continued to increase this past year and indications are that a definite upswing in numbers is in progress. Heavy snows during the past couple of winters probably benefited these birds. They were occasionally noted budding on the birch trees during the winter months and could be seen along refuge roads during the summer. Their snow roosts were seen on several occasions. Sharp-tailed grouse which have similar habits showed no promise of increase but were seen from time to time near the west fields. Deer hunters reported several good flocks of 20 or more birds adjacent to the refuge in November. It is hoped that some of these will return to the dancing grounds on the refuge in the spring.

C. Big Game Animals:

White-tailed deer had a good year and numerous twin fawns were noted. The marshes off the refuge were drier this past year and the deer were able to range more widely than during the past couple of years. Concentrations still occurred on the refuge fields and hay meadows where they proved a major attraction to sightseers. The heavy snows of late winter had the animals looking a little peaked in some areas but no problem was observed. A total of 169 deer were seen by the manager's family on a refuge tour April 22. The deer were able to move about freely at the end of the year as the total snowfall on the ground averaged about 15 inches. Hunting season removal

took the herd down to a reasonable level and the population going into the winter was considered about right. One wounded fawn was under observation at the end of the period. The doe and other fawn were killed and this one wounded high in the foreleg. It was still able to get around fairly well on three legs. Three-legged deer are not unknown in this area. Long range shooting by short range shooters in the bog area makes uncertain hits common.

Moose were occasional transients on the refuge. One cow visited the Refuge Headquarters area during October. Moose tracks were more often noted than were the moose.

Black bears were much more commonly noted than during the past couple of years. Refuge visitors were treated to this sight on several occasions. The refuge manager was able to show his visiting brother from Michigan a large sow with three cubs and was fortunate enough to observe several others during the summer.

D. Fur Animals, Predators, Rodents and Other Mammals:

The refuge mink population changed little from the previous year. Although several were observed, especially near water control structures, their numbers are not great. A few were also taken in live traps during duck trapping operations and were released.

Muskrats were definitely down from the previous year and only a small number of houses were in evidence as compared with 1965. Observations of these animals during the summer were also far fewer.

Otters again proved an attraction during the spring breakup when they are usually most easily observed. Their trails and fishing holes could be seen throughout the winter. Since these animals range so widely, some are taken each year adjacent to the refuge by beaver trappers and during otter seasons. No harvest on the refuge is therefore planned, since the population remains relatively light.

New beaver colonies and lodges were evident in several locations on the refuge and in most instances there were beneficial rather than detrimental effects of their work. Those animals which adversely affect water movement are located outside of the refuge boundaries and are usually controlled by local trappers. It is now possible for sightseers to observe beavers at work on the refuge on quiet evenings during the summer months.

Weasels are found throughout the refuge but are of little or no interest to trappers because of their low value.

Red foxes are a fairly common refuge animal and control is exercised as needed.

A couple of reports of coyotes on the refuge were received from deer hunters west of Rice Lake and near the Rice River Pool. One was seen during the winter on Rice Lake by the State Fish Rescue Crew.

Control of raccoons was again necessary during wood duck trapping operations and as the occasion permitted at other times during the year. About 50 were removed.

Badgers were seen on rare occasions on the refuge and are not a common animal.

Skunks were fairly commonly seen during the spring and early fall and were disposed of as noted.

Porcupines were regularly noted over all of the refuge, especially during the winter months.

Gray squirrels were down in numbers from the previous year. Fox squirrels are very uncommon. Red squirrels were also noted in diminished numbers. The past couple of long and severe winters could have had some effect on these animals.

Occasional stray cats were disposed of during the early fall.

Meadow voles and other rodents appeared to have declined somewhat over the past year.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies:

Marsh hawks were slightly more common on the refuge this past year but were far from abundant. Sparrow hawks were quite common, especially during the late summer when these birds were moving through. Red-tailed hawks were present during the summer, as were Cooper's, sharp-shins and goshawks. Roughlegs were most evident during the fall and winter months. Broadwings were seen occasionally during the summer.

Ospreys were seen occasionally, the first on June 12, by Mr. Thornbloom.

Northern shrikes were fairly common fall and winter notables.

Bald eagles were seen during most of the late winter, summer and fall months. Peak populations of a dozen or more of these birds were observed especially during the spring and fall. Observations were primarily of immature birds. Rough fish on the ice of Rice Lake proved a good attraction, as did carrion

during the waterfowl migrations. Two nests are located within 200 yards of each other on the west end of Rice Lake and these were given full protection according to plan. An interesting observation was made by the refuge manager during the fall when ravens and eagles were working on a road-killed deer west of headquarters. An immature eagle had carried the entire front leg bone with considerable flesh of the deer to a perch in a tree about one-eighth of a mile from the site of the kill. Two ravens were doing their best to get in on the feast but the eagle was able to keep its find until its needs were satisfied.

Barred owls continued to be the most common refuge owl and were seen and heard quite frequently. Saw-whet owls were uncommon. Hawk owls and snowy owls were uncommon refuge visitors. Great horned owls were seen and heard occasionally. Great gray owls were rare as they are only occasional visitors from the North.

Crows were very common from late winter until late fall. Although ravens were not as common as in 1965, they were seen regularly in singles or small groups.

Only two magpies were seen this past year as compared with several observations in 1965. This bird has never been common on the refuge, their status being transient as a rule.

F. Other Birds:

Evening grosbeaks, pine grosbeaks, purple finches and pine siskins were all fewer in numbers than a year ago. These birds all used the refuge feed at Headquarters sites. The bluebird, tree swallow and martin houses were all used this year, as were wren houses. Gray jays were less common than last year but several were observed. These birds also frequent more northerly areas as a rule. Most birds common to the refuge area were seen during the year. Hummingbirds were common users of the feeder at the manager's residence from late May to late September. A whip-poor-will was heard at refuge headquarters by the refuge manager on June 13.

G. Fish:

Open controls during the spring fish run permitted access to the Rice River and Rice Lake areas. As a result, northern pike production in the lake was excellent and fishing in the river held up well during the entire summer. Some people traveled considerable distances to fish here because it is ideally suited for the older citizens who cannot pursue the more vigorous types of fishing.

Fish rescue operations were halted in March as oxygen levels rose in the lake and pumping was no longer effective. They

were resumed again on November 2, when traps were again placed at the outlets of Rice Lake and the Rice River Pool, as well as in Mandy Lake. A good run of fish brought excellent success and many thousands of northern pike were transplanted to other lakes in this area. Some of these early run fish ran up to six pounds in weight. Later runs consisted of fish-of-the-year. These average about a foot in length. At the close of the period the run was slowing somewhat and the oxygen was dropping. When these traps go dead, operations will be switched to lead traps and pumping operations in the lake, as in the past. The artificial current and boosted oxygen makes pumping at the island a very successful operation until late winter. During the late winter of 1966 the rescue operations accounted for 44,000 northerns weighing over 7,000 pounds. Early fall operations accounted for another 25,000 fish for a total of 69,000 northerns rescued from winter kill and made available to fishermen in other lakes. In addition to the fish salvaged, many hundreds of pounds of bullheads, yellow perch and suckers were made available to local residents for food and as feed for animals.

H. Reptiles and Amphibians:

Garter snakes, snapping turtles and painted turtles were all common on the refuge and made up most of the refuge reptile population. Spotted salamanders were fairly common. Leopard and mink frogs, tree frogs, spring peepers and toads were all very common.

I. Disease:

No disease was noted among refuge wildlife during the past year. Leeches were again removed from the eyes of several ducks during banding operations. An immature blue goose in a emaciated condition was found in the west field area by Mr. Thornbloom. It appeared to be blind and closer examination showed leeches under the lids of both eyes. They were removed and the bird released. It is not known if it survived.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

The North Bog Road was further improved by hauling in fill and building wide spots in the road every one-fourth mile or so for meeting traffic or for turning around. A total of 1,105 yards of fill was moved for this purpose. This road is still very soft and spongy in places and is doubtful if it would ever stand up under heavy traffic.

The South Road was shaped up and the turn-arounds were widened with the addition of 345 yards of fill. In addition the balance of the road was graveled requiring 525 yards of material.

The access road to the Rice River Dike was widened and raised. About 200 yards of fill was placed and gravel in the amount of 30 yards. In addition fill was hauled to various places around the refuge where culverts needed fill, roadways needed a little widening or brought to grade, and around our storage building to facilitate more equipment storage. This accounted for an estimated 130 yards of material.

An access road to the propane storage tank at residence #68 was constructed. Fill and gravel amounted to approximately 200 yards.

Another section of cement floor was added to our storage building at the Rice Landing. Two-thirds of this building now has a cement floor. At this same site a cement base was poured and another metal grain bin erected for storage of seed and other purposes of a grainery.

A shallow drainage ditch approximately 300 yards long was constructed with the refuge D-7 to facilitate drainage in the northeast edge of the agricultural units. In addition a small impoundment was built in the same general area with a 200 foot dike. It has a small spillway constructed towards one end and is designed to hold a head of three to four feet of water. The dike has been rip-rapped and will catch this spring's run-off.

The main entrance road west of headquarters was reshaped with the grader to get back to the original ditches and facilitate runoff from rains. Three-fourths of a mile was finished with more scheduled for the coming year.

The entrance roadsides and all other trails were mowed and cleared of brush. In addition brush was cut back from all road intersections and corners.

Nine new culverts were installed. Two were new installations and the balance replaced smaller ones with limited capacity.

Equipment was maintained and repaired as required.

Building and grounds maintenance continued. This included painting the ends of the quonset building, painting of Antler Inn and touch-up painting of resd. #1. The doors of most buildings were also painted. Many other minor repairs were also made. The rest rooms at the picnic area were sanitized and repainted inside.

Headquarters, the fishing area at the bridge and the picnic area were maintained. The headquarters area consisted of mowing, trimming of trees; planting of several spruce and maple around residence #68 for shade and appearance. The fishing and picnic area needed constant attention such as hauling away garbage, cleaning up after litterbugs and mowing of grass and cutting weeds.

Several old fences were removed from newly acquired land.

Boundary posting and hunting area posting was done as required.

A new redwood bulletin board with glass front door was constructed and placed at the refuge entrance to replace the one stolen by persons unknown.

The recently acquired Henry Miller tract is located near the agricultural units. As additional storage space for equipment the lower portion of the barn was removed and the loft or upper section was lowered down on the cement footings. By cutting out a door and framing it in a metal roofed quonset-type building was acquired at a very reasonable cost.

Bids were prepared and surplus buildings sold to the highest bidder on recently acquired lands. This included the sale and removal of refuge residence #3. Work at these areas included removal of water pumps and the propane storage tank and fence at residence #3.

The mechanical rock picker was put to the test this last summer and fall and proved to be a very valuable piece of equipment. The unit works best if the ground is well-worked up first so the rocks are loose and laying on top of the ground. Some difficulty was experienced if the soil was trashy or had clumps of sod, roots, etc. However, this was minor considering the time and labor saved. Surface rocks were picked from 78 acres. Some units received several treatments.

Three men, one to work up the ground, one to drive the tractor and picker and one to follow and haul the rocks away by truck can easily pick the surface rocks off six acres per day. Working off and on as weather conditions permitted 78 acres were cleared. This will have to be repeated several times but it sure beats the old method.

B. Plantings:

1. Aquatic and Marsh Plants:

None.

2. Trees and Shrubs:

Three white spruce and six hard maple were planted around residence #68 in the spring.

3. Upland Herbaceous Plants:

None.

4. Cultivated Crops:

Cultivated crop production continues to suffer from extreme wet and cold conditions during the short planting season this far north. Field corn that should be put in by May 20, didn't get planted until June 8. Thirty-three acres was put in but survival was poor. However, it did provide some food value and was utilized by deer and to a smaller degree by geese. Buckwheat was planted on 42 acres. Last year's crop was excellent but was very thick. This year it was planted without fertilizer and the yield was lower. An examination of the plants showed that not many seeds were formed, possibly due to lack of sufficient bees and other insects for pollination.

Fall browse strips of rye were planted on September 2, and the catch was good. The 30 acres planted were heavily used by geese, ducks, deer and other forms of wildlife.

Several strips left for hay production and then cut for fall browse strips worked out quite well. Wet conditions hampered the hay permittee though and he was still baling hay in September.

C. Collections and Receipts:

A good wild rice harvest yielded a record monetary take for the individual rice harvesters this year. With wild rice in short supply this year the price per pound of green rice went beyond all expectations. As procedure, the Chippewa Indian Committee decided the rice stands would accomodate 20 boats or 40 pickers. Twenty boats, harvesting ten days from September 13 through September 22, picked a total of 44,655 pounds of rice. The Government share of eight per cent amounted to 3,572 pounds. Cash return to the Government was $7,785.15. The lowest price paid per pound of green rice was $2.00 and the highest $2.55. The average price paid was $2.165 per pound. The average seasons take per boat amounted to 2,054 pounds which at an average price of $2.165 per pound gave each boat (two Indians - usually man and wife) $4,446.91 for ten days work, or $444.69 per day.

One of the better ricing teams, Mr. & Mrs. Sam Yankee made close to $8,000 and plan to build a new house. As might be expected many of these people weren't used to such wealth, and money that could have been put to good use was wasted. A few of the older Indians still retain several hundred pounds of rice regardless of price and parch it for their own use.

D. Control of Vegetation:

There were no herbicides used this year for the control of vegetation. Control of weeds and brush was accomplished by mechanical means.

E. Planned Burning:

Burning of accumulated trash and monotypic marsh vegetation was accomplished per the approved burning plan. This was done early in order to avoid peat fires and to beat the spring flood waters which sometimes inundate the designated burn areas. Success was good, with approximately 1,000 acres treated in this manner. Geese grazed extensively on the young, green shoots made available during the spring.

F. Fires:

None.

IV RESOURCE MANAGEMENT

A. Grazing:

Two permittees grazed a total of 27 animals for a total of 144 AUM's.

B. Haying:

At best the hay units do not produce very good tonnages. This year weather conditions were not very good at the time for best growth. Even though there were additional permittees this year due to added refuge acreage the total amount cut was not much more than last year. A total harvest of 319 tons was realized. Some changes in haying areas are being put into effect to benefit waterfowl nesting.

C. Fur Harvest:

There was no fur harvest on the refuge this year. The sole trapper, Mr. Harold Olson, applied for a permit but was refused.

His efforts have been dropping off a little each year and it was determined he wasn't deserving of a permit. Several other persons were interested in trapping but when they found out the arrangement for sharing with the Government they lost all interest. Furbearer populations did not indicate a need for trapping.

D. Timber Removal:

Two permittees cut a total of 501.5 cords of aspen which went as pulpwood. In addition the one permittee cut 305 cedar posts ranging from seven to twelve feet.

E. Commercial Fishing:

None.

F. Other Uses:

None.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Waterfowl Banding:

Ninety-two ducks and 21 geese banded for 1966 does not show a true picture of the work that went into the banding project. In late June two new six foot weld-wire walk-in traps were built and banding sites were prepared, etc. However, about the time banding should have been in full swing, other work came up that could not be postponed. In addition, one of the best banding areas happened to be the general site for preliminary surveying in connection with future master planning.

Past experience has proven the food qualities of wild rice. When the prospects are good for a wild rice crop it is necessary to band as many birds as possible before the birds began feeding on it. Once the ducks start feeding on rice they seem to ignore other foods completely. All waterfowl, including wood ducks show a marked preference for rice.

Light summer populations of waterfowl hampered the banding program and when populations did build up they immediately began feeding on rice and ignored the banding sites.

The 21 Canada geese banded were young-of-the-year produced on the refuge.

To-date this refuge has banded a total of 11,168 birds. The following summaries provide a yearly breakdown of waterfowl banded and a further breakdown by species.

TOTAL WATERFOWL BANDED

RICE LAKE REFUGE

1958 - 1966, Incl.

Year	Ducks	Geese
1958	480	-
1959	1,527	13
1960	1,610	10
1961	1,374	6
1962	2,992	23
1963	465	32
1964	1,639	21
1965	837	26
1966	92	21
	11,016	152

SUMMARY OF BANDINGS

AOU No.	Species	Adults		Immature		Total
		Male	Female	Male	Female	
132	Mallard	849	1,901	1,731	2,803	7,284
133	Black Duck	408	147	241	175	971
143	Pintail	12	14	13	28	67
137	Widgeon	6	6	54	19	85
144	Wood Duck	587	99	203	193	1,082
150	Ring-necked	6	3	29	5	43
139	Green-winged	67	95	614	490	1,266
140	Blue-winged	5	7	74	118	204
149	Lesser Scaup	-	-	-	1	1
146	Redhead	3	-	1	3	7
221	Coot	-	-	5	1	6
172	Canada Goose	7	6	62	76*	151
169.1	Blue Goose	1	-	-	-	1
	Totals	1,951	2,278	3,027	3,912	11,168

* Includes 8 immature birds - sex unknown

As of June 30, 1966 band returns received totaled 988 on 11,016 ducks banded here. They came from 32 states, three Canadian provinces and the country of Venezuela. In addition, out of 152 refuge geese banded 28 band returns have been received from 10 states and one province of Canada. Work is now in progress for a complete compilation of refuge banding returns.

B. Canada Geese:

The refuge flock continued with good nesting success. Production for 1966 was figured the same as 1965 with 200 birds produced. The birds are breaking up after returning from the south and are nesting well away from the immediate refuge area. Reports have come in of nesting birds 20 miles or so from the refuge. Twanty-four birds chose to remain at the refuge for the winter. Of these there were four or five that were pinioned.

The refuge flock began building up on the refuge in late August and by September numbered about 400. Hunters are beginning to pay attention to this hunting bonus and the flock is now beginning to come under gunning pressure along the west refuge boundary. Several birds were killed this past fall and the kill will no doubt increase with each passing year.

The following table shows the number of geese produced on the refuge since 1958.

CANADA GEESE PRODUCED

RICE LAKE REFUGE

1958 - 1965

1958	19
1959	30
1960	32
1961	15
1962	50
1963	150
1964	175
1965	200
1966	200
Total	871

C. Artificial Nesting Sites:

Seven goose nesting platforms were constructed in the refuge shop to test the possible acceptance by Canada geese. These were installed at various locations on the refuge where it was felt that they had the best chance of use. No geese were noted to use these platforms for any purpose during the first year. Natural and artificial islands have been adequate and many are still available.

Because of the versatility of fiberglass and Mr. Thornbloom's knowledge from working with this material in building canoes, various ideas regarding construction of wood duck nest boxes were investigated and a local plastics factory was consulted regarding the possible construction using this material. Those people indicated the various problems involved and were extremely interested and cooperative in helping to make this possible. No charge was made for the mold and the sample looked pretty good. The refuge ordered 100 of these boxes at $7.00 each but pressing work at the factory prevented completion of the boxes in time for spring nesting. Most of them were installed during the late spring and the balance will be put up this winter after certain experimental light and color combinations are tried. The present boxes have floor flanges molded into the backs of them. In this way, a flange with a short section, 18 inches in this case, of pipe can be easily mounted on the tree and the box merely screwed on. Screws also hold the flanged top on the box. Minor changes such as hinging, molded fiberglass threads, etc., are in the process of development. These boxes are extremely hard and smooth and should prove a real challenge to raccoons and other predators. Wood shavings are placed in the boxes for nesting and a plastic screen is molded in to provide toe-holds for the young birds. These boxes are still experimental and have been ordered for trial at several other refuges from Georgia to Texas.

VI PUBLIC RELATIONS

A. Recreational Uses:

Sightseeing continued to be a big attraction of the refuge in that it was possible to drive through and see deer and geese along the refuge roadways; sometimes a bear, fox or other wildlife. Fishing was especially good this past year and attracted many daily visitors. One woman swore that because she was able to fish every day the doctor told her she could throw away her pills. Deer hunting during November also attracted a considerable

number of refuge visitors. Some also visited the refuge merely to pick up rough fish salvaged from fish rescue operation. Bird watching brought in a select group, especially during the time that the Black Brant was present. Conservation and nature study groups arranged for tours and generally used the picnic area for their noon lunch. This area also brought in local residents who enjoyed the atmosphere and the chance to see a deer or beaver during the quiet evenings.

B. Refuge Visitors:

See attached list.

C. Refuge Participation:

See attached list.

D. Hunting:

There were two deer seasons set for the refuge again this year, one for firearms in November and another for bow and arrow in December. Again, there was no interest in the bow season and it has been proved over several years to be unworthy of the necessary administrative, patrol and posting work to manage this season. Hunting pressure during the gun season rose above that of a year ago, as did the kill. More than three-fourths of all the deer taken were killed during the first two days of the season. A nine day season would not be necessary on the refuge to adequately harvest the deer; a five day season would be more than sufficient. Patrol, which is done to a large extent in addition to the regular tour of duty, is generally donated time which often equals or exceeds the regular tour. Daily kill checks indicated a total of 887 hunters took 149 deer for a 16.7 success ratio. The highest hunter concentration was 218 hunters who took 57 deer for opening day success of 26.1 per cent. The second day 171 hunters took 48 deer for a success ratio of 28.0 per cent. This rapidly dropped to a low of 3.4 per cent, coming back up to 12.6 on the last day of the season. A good carryover of deer after the hunting season and good browse conditions on the refuge should provide adequate stocking for next year. Present snow conditions do not indicate problems, which gives the deer a good head start on the winter.

Waterfowl hunting in the refuge vicinity was fair to good, depending upon the time and effort expended by the individual hunters. Hunters on local lakes reported good success on ring-necks in particular. Mallard hunting on those lakes containing wild rice showed good days but these areas were the first to

B. Refuge Visitors:

Name	Organization	Date	Purpose
Chester Monson	Minn. Cons. Dept.	1/6/66	Fish rescue
Orville Schultz	Minn. Forestry Dept.	1/14	Courtesy call
Wm. Aultfather	Bureau Forester	1/18	Long Lake Youth
James Marcum	State Warden	1/18	Camp Forestry
Kern Ridlington	County Forester	1/18	practices
James Marcum	State Warden	1/31	" "
Chester Monson	Minn. Cons. Dept.	2/1	Fish rescue
Harry Pinkham	U.S.G.M.A.	2/2	Deliver geese
R. W. Burwell	Regional Director	3/2	Youth Camp Planning
D. Umberger	Regional Engineer	3/2	" " "
Regional Office Survey Crew		4/4	Land survey
E. Crozier	R.O. Planner	4/6	Master Plan
L. Dundas	R.O. Technician	4/6	Long Lake program
Harry Pinkham	U.S.G.M.A.	4/7	Enforcement
John Winship	Refuge Pilot	4/15	Aerial photos
L. H. Dundas	Staff Technician	4/15	" "
E. Crozier	R.O. Manner	4/28	Master planning
H. B. Crandall	Central Office	4/28	Master planning
E. Stephenson	R.O. Engineer	4/28	Master planning
L. Kowalski	R.O. Engineer	4/28	Master planning
Ray Ostlie	G.S.A.	5/3	Excess property
R. Sharp	Bureau	5/5	Stop enroute
F. R. Martin	Bureau	5/7	Refuge orientation
Refuge Manager's Academy Class		5/7	" "
R. Easton	Bureau	6/10	Excess property
J. Akers	State Game Warden	6/17	Band.FFA Mallards
George Rickert	I. W. League	6/23	Visit
Frank Heilman	I. W. League	6/23	Visit
L. H. Dundas	Staff Technician	6/24	Y.C. tour orientation
M. Beaudry	Bureau	6/24	Orientation
Dale Sanders	Photographer	7/20	Y.C. activities
D. V. Gray	Bureau	7/24	Visit enroute
F. R. Martin	Bureau	8/15-16	Inspection
E. Crozier	R.O. Manner	8/17	Master planning
J. Knecht	R.O. Architect	8/17	Master planning
L. Kowalski	R.O. Engineer	8/17	Master planning
R. Toltzman	Chautauqua Refuge	8/26	Visit
J. Carlson	Sherburne Refuge	9/1	Visit
B. Schranck	Sherburne Refuge	9/1	Visit
W.A. Brun	U. of Minn.	9/7	Rice inspection
P.K. Yagger	U. of Minn.	9/7	Rice inspection
Paul Krause	Bureau/Indian Affairs	9/16	Rice inspection
C.L. LeBeau	" " "	9/16	Rice inspection

B. Refuge Visitors (Continued):

Name	Organization	Date	Purpose
John Hogar	State of Minnesota	9/15	Weigh rice samples
D. V. Gray	Upper Miss. Refuge	9/27	Deliver signs
Bart Foster	Upper Miss. Refuge	9/27	Deliver signs
R. W. Burwell	Regional Director	10/11	Visit enroute
M. Reeves	Bureau	10/14	Equipment pickup
John Winship	Bureau	12/22	Take photos
Don Riley	Bureau	12/22	Take photos

In addition there were numerous other calls by the local game wardens, fisheries personnel, refuge permittees and local residents.

C. Refuge Participation:

Group	Date	Participation
Riverside Liberty 4-H Club	1/11	Instruction
McGregor Lions Club	2/7	Talk and slides
Leaders 4-H Meeting	2/12	Instruction
KKIN Radio	2/16	Cut tape
Riverside Liberty 4-H Club	2/23	Conservation class
Aitkin County Sportsmens Club	3/2	Represent Bureau
Riverside Liberty 4-H Club	3/8	Film and talk
Fleming 4-H Club	3/19	Film and talk
Aitkin Boy Scouts	5/7	Merit Badge work
KKIN Radio	5/13	Refuge activities
Emily 4th & 5th Grades	5/18	Refuge tour
Aitkin Biology Class	5/20	Refuge tour
McGrath Biology Classes	5/23	Refuge tour
Aitkin 4-H Club	6/21	Refuge tour
Conservation Center	6/30	Refuge tour
McGregor Headstart Class	7/11	Refuge tour
Conservation Center	7/14	Refuge tour
Conservation Center	7/28	Refuge tour
Conservation Center	8/11	Refuge tour
Conservation Center	8/25	Refuge tour
Aitkin County Auditor	9/19	Deliver receipts refund
Izaak Walton League	9/25	Refuge tour
Leech Lake Enforcement Meeting	9/28	Instruction
McGregor 1st & 2nd Grades	9/29	Refuge tour
St. Scholastica College	10/8	Refuge tour-Birdwatching
Orphanage Boys	11/5	Refuge tour
Aitkin County Sportsmens Fed.	12/19	Talk

freeze over due to their shallow water. Refuge Canada geese took some punishment along the refuge boundaries as outsiders began to move into this area. Some blues and snows were also taken west of the refuge but this success did not compare with that of the previous year. It is estimated that about 30 Canadas were taken, about 50 per cent more than a year ago. Local hunters often still refrain from hunting the refuge geese as they would like to see the flock increase further.

E. Violations:

Name & Address	Charge	Fine
James Wester 623 Taylor Avenue Minneapolis 13, Minn.	Shooting after hours.	$ 20.00
Ed Elling Route 2 Aitkin, Minnesota	Over daily limit of mallards.	Case dismissed
Robert Elling Route 2 Aitkin, Minnesota	Over daily limit of mallards.	Case dismissed
Don Elling 1516 77th Ave. N.E. Minneapolis, Minnesota	Over daily limit of mallards.	Case dismissed

Mr. Thornbloom had the frustrating experience of having a flagrant violation dismissed by the Municipal Court. To make a story short, he apprehended the three Ellings listed above with 12 freshly-killed mallards in their boat (daily limit 2). The Municipal Judge in Aitkin dismissed the case for lack of evidence - mainly a thermometer was not used to determine time the birds were actually killed.

F. Safety:

The refuge came through another year with no accidents and the crew is to be commended. The station record at the end of the year stood at 1,133 days with no lost time accidents.

Safety meetings and discussions were held throughout the year, often on the basis of some item which it was felt should be emphasized at the moment when it could be demonstrated. Good work habits and good housekeeping were shown to be part of a good overall performance record.

VII OTHER ITEMS

A. Items of Interest:

The Refuge Manager prepared Sections II, V, VI and VII of this report. Mr. Thornbloom prepared Sections I, III, IV, and portions of V and VI. He also assembled and typed same.

While checking water elevations in June, the Refuge Manager observed a large raccoon pursue two blue-winged teal ducklings through shallow water, catching one of them. It carried the duckling into the tall grass where it could no longer be observed.

The refuge personnel were able to assist with conservation education of Long Lake Conservation Center boys throughout the summer. One group included school teachers and State Game Wardens.

Mr. Thornbloom was reclassified to Biological Technician GS-6 during the year. He also again assisted Dr. Green at the Refuge Manager Academy at Arden Hills during the period April 17 to May 21, 1966.

Photographs, with the exception of that of the Manager and the aerial of Refuge Headquarters, were taken and processed by the Refuge Manager.

SIGNATURE PAGE

Submitted by:

(Signature)

Carl E. Pospichal
Refuge Manager
Title

Date: February 9, 1967

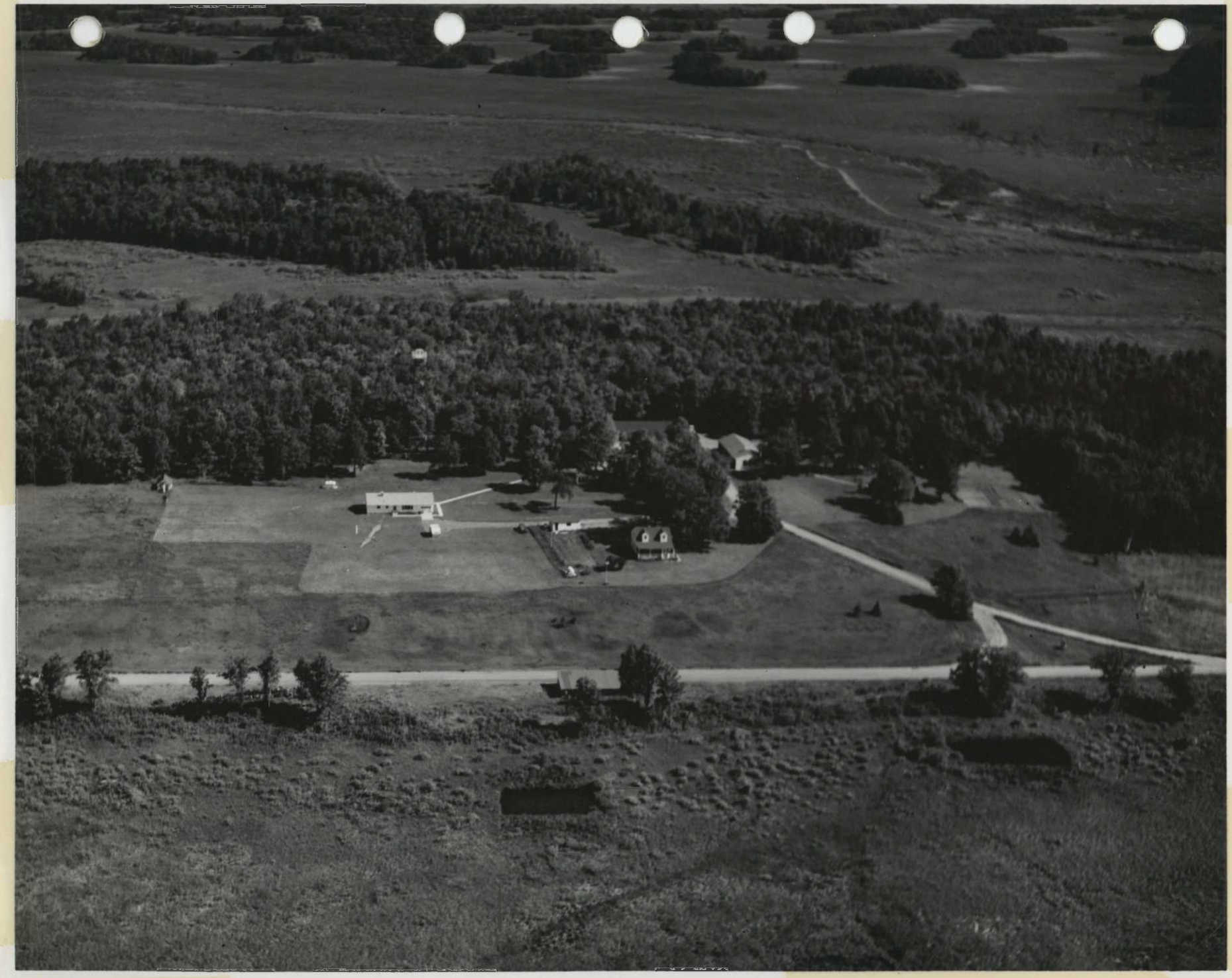
Approved, Regional Office:

Date: 2/13/67

Frank R. Charter
(Signature)
Asst.

Regional Refuge Supervisor

Aerial view of Rice Lake Refuge Headquarters
taken by Refuge Pilot, John Winship.



Manager Pospichal - Taken by his son Mark.
Personal negative.

66-1

Biological Technician, Thornbloom about to
show an informational movie.

66-2

Maintenanceman Hurd stains new refuge signs.

66-3

Arden Hills Refuge Manager Academy group toured the refuge.


RICE LAKE

66-2


U.S.
DEPARTMENT
OF THE INTERIOR
HEADQUARTERS
RICE LAKE
NATIONAL WILDLIFE
REFUGE

66-3

66-3-A

One of the Long Lake Conservation Center groups on a periodic refuge ecology session. Lecture by R.O. Staff Specialist, Dundas.

66-4

An Aitkin 4-H group at the picnic area; one of several such groups which used the refuge to study conservation.

66 - 3A

66 - 4

66-5

The fishing walk at the Rice River bridge was a popular place and success was good. The boat launching ramp is in the background.

66-6

Deer hunting was very good on the refuge. This group filled out easily.

66-5

66-6

This proud hunter was especially pleased with his luck.

66-7

66-8

Heavy monotypic cover and duff was burned under approved plan.

66-9

Results of part of the planned burn.

66-8

66-9

66-10

Mechanical brush clearing was done along Rice Lake.

66-11

This pothole which was reclaimed several years ago showed good duck use.

66-10

66-11

66-12

Aerial view of several clusters of potholes dug by dragline, also several years old, in excellent condition.

66-13

Small stoplog structures such as this one help control water elevations on some of Rice Lake Refuge's best production habitat.

66 - 12

66 - 13

66-14

Maintenanceman, Hurd, constructs a dike for a new impoundment.

66-15

Several new goose nesting platforms were constructed and set out but were not used during their first season.

66 - 14

66 - 15

66-16

Brush piles, earth islands and natural habitat were well used by nesting Canada geese such as this family.

66-17

A new fiberglass wood duck nest box is now under test on the Rice Lake Refuge.

66-16

66-17.

66-18

Habitat management included haying of a newly acquired land parcel to control encroaching brush.

66-19

Under S. & M. work, needed drainage was accomplished to take excess water from croplands.

66-18

66-19

66-20

Biological Technician, Thornbloom, reviewed refuge policies with Indian wild rice harvesters prior to the first day's ricing.

66-21

The ricers shown heading for the rice beds.

66-20

66-21

66-22

An excellent stand of wild rice.

66-23

These two Indian women did very well at ricing.

66-22

66-23

66-24

This canoe held one day's harvest of wild rice by this man, Sam Yankee, and his wife worth over $1,000 at 1966 prices.

66-24

66-25

Aspen pulpwood in this area is generally peeled where it falls, in order to take full advantage of the limited peeling season. It is later bucked up and loaded out.

66-26

Unpeeled aspen is generally skidded out and hauled as it is cut. Mechanical equipment for handling pulp is used by most operators.

66-25

66-26

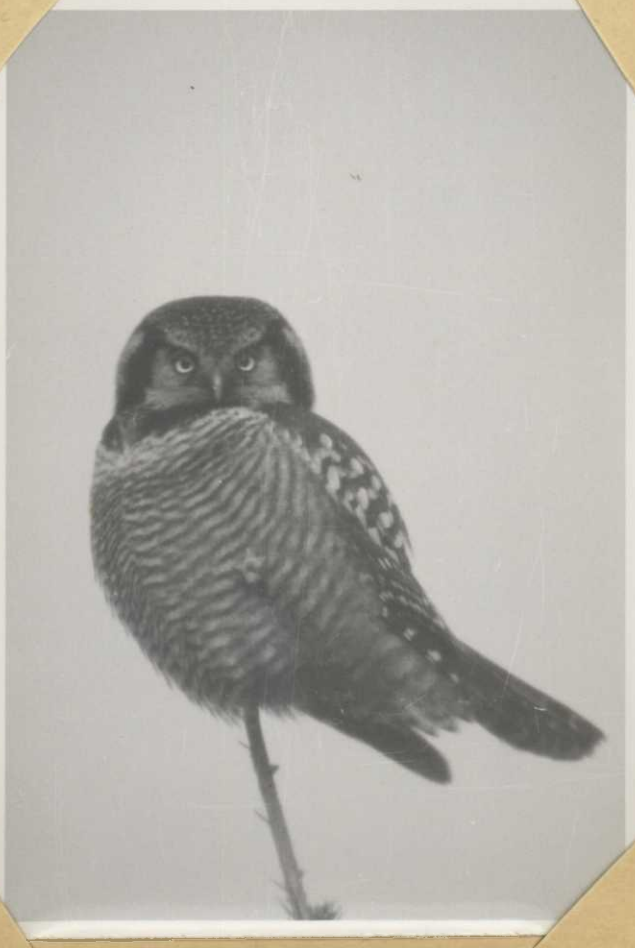
66-27

The barred owl is a permanent refuge resident.

66-28

Hawk owls are refuge visitors, usually during the winter months.

66-27



66-28

66-29

Snowy owls are also refuge visitors. This is a dark specimen.

66-30

This doe stopped for a final look back before disappearing into the timber.

66-29

66-30